(No Model.)

3 Sheets—Sheet 1.

J. G. SHELDON.

FIREBACK.

No. 505,237.

Patented Sept. 19, 1893.

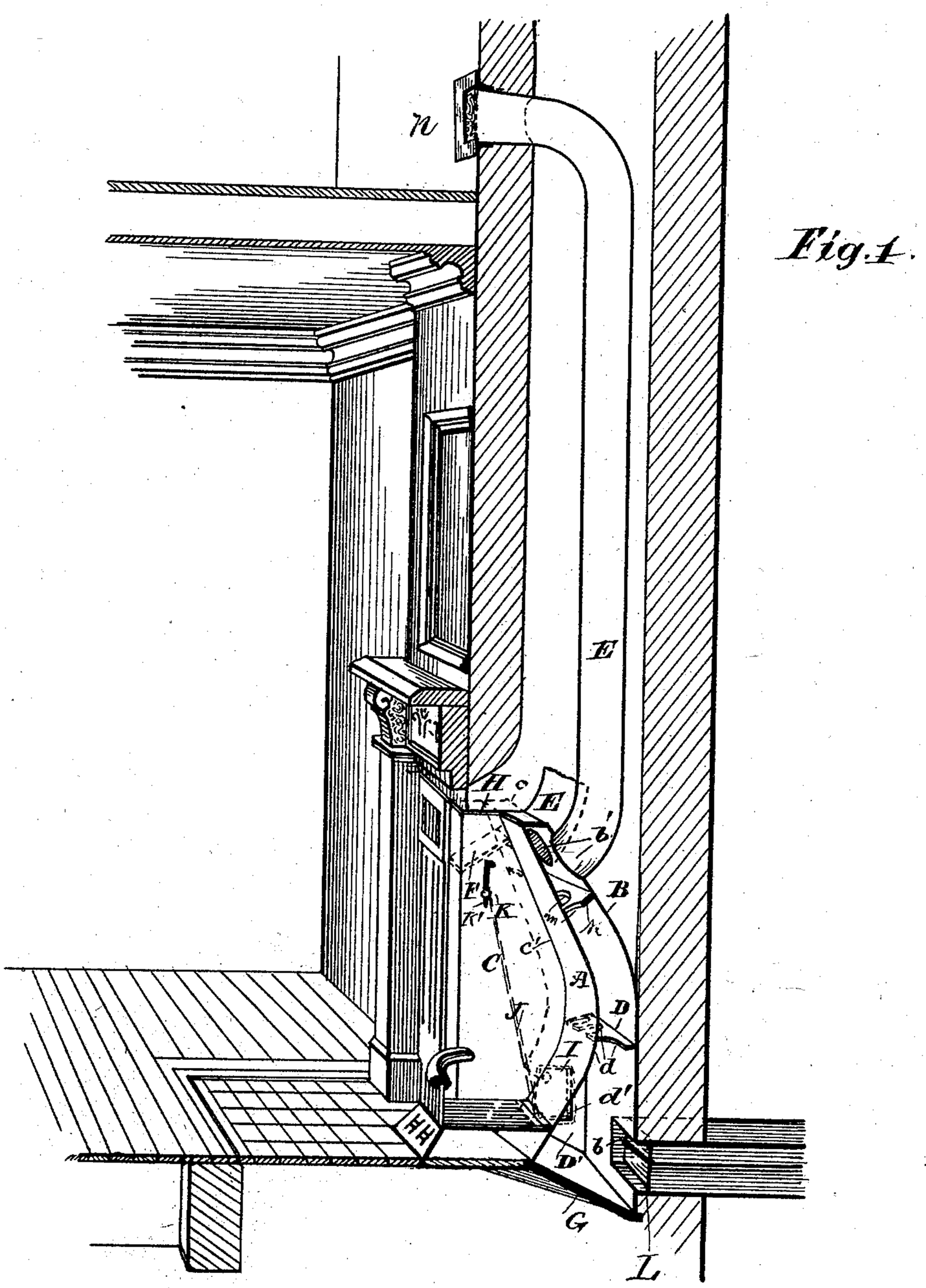

Fig. 1.

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(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

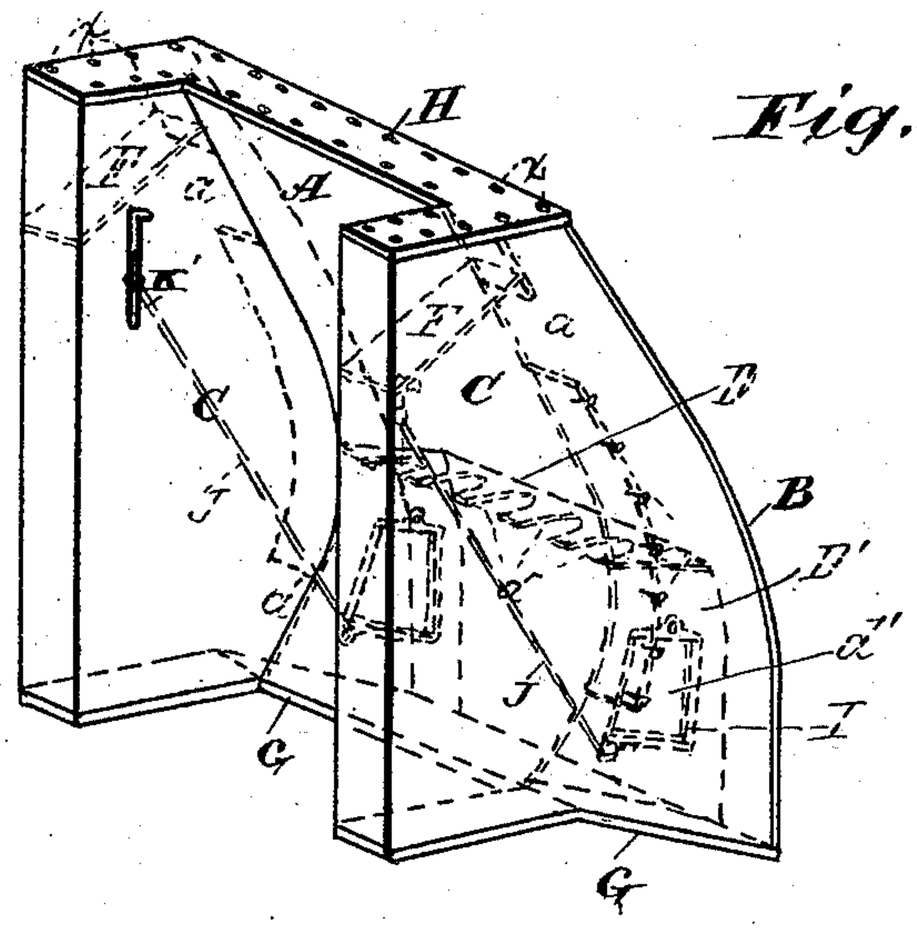
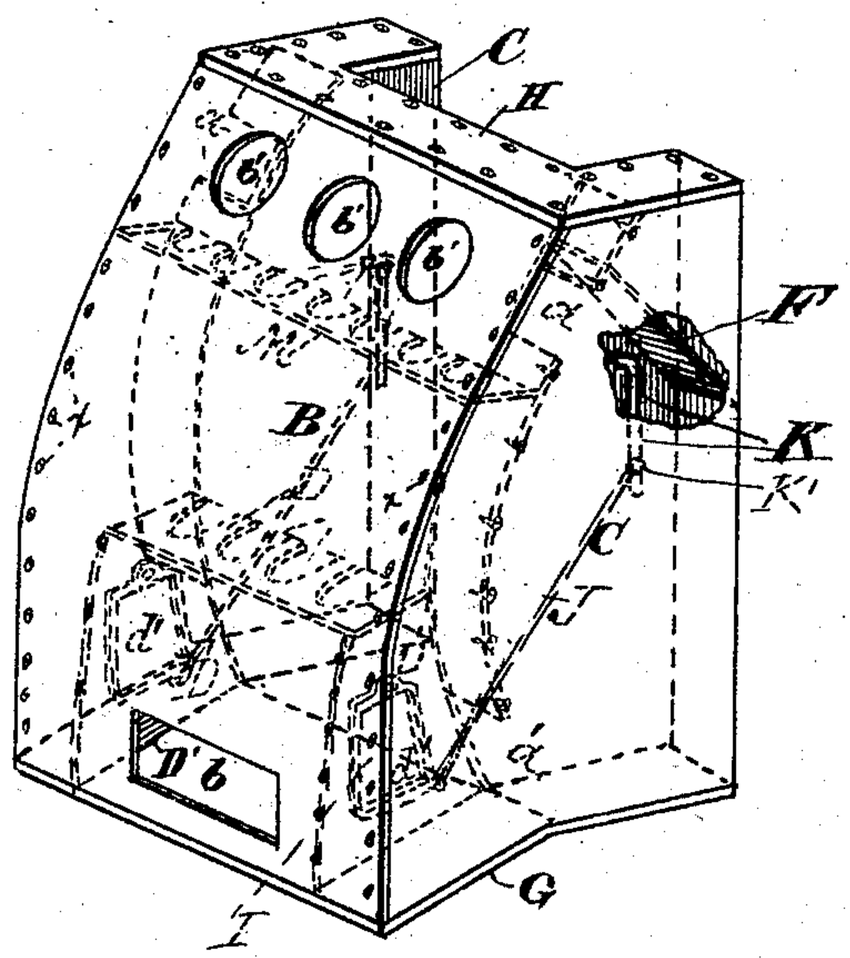


Fig. 3



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(No Model.) 3 Sheets—Sheet 3.

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FIREBACK.

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Fig. 4.

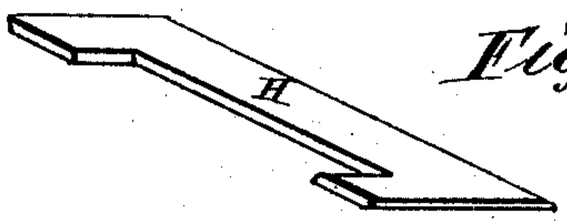


Fig. 5.

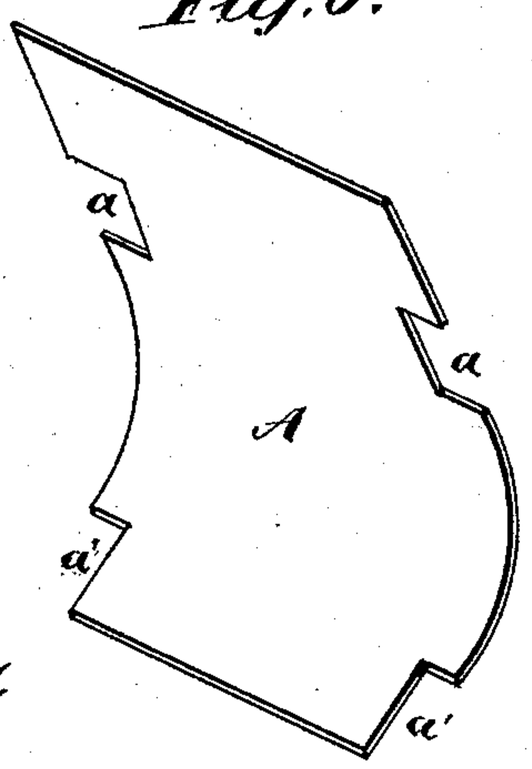


Fig. 6.

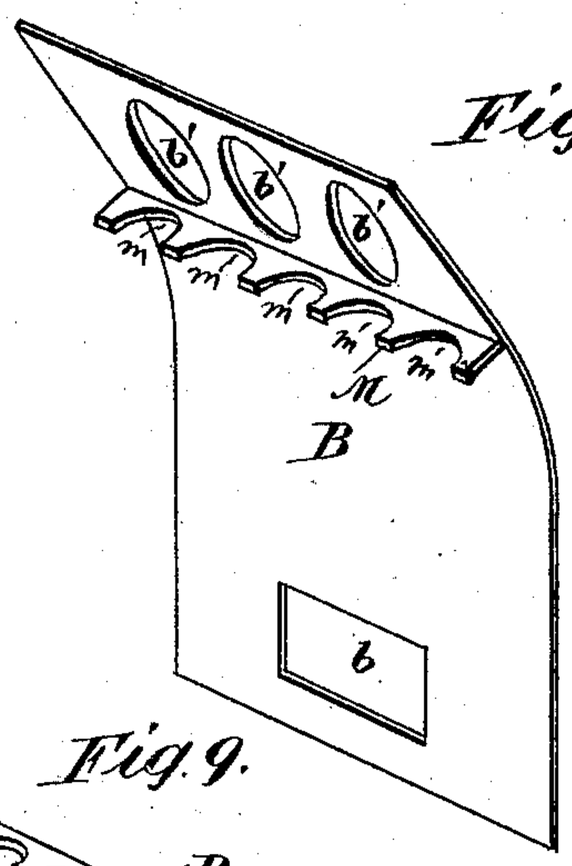


Fig. 7.

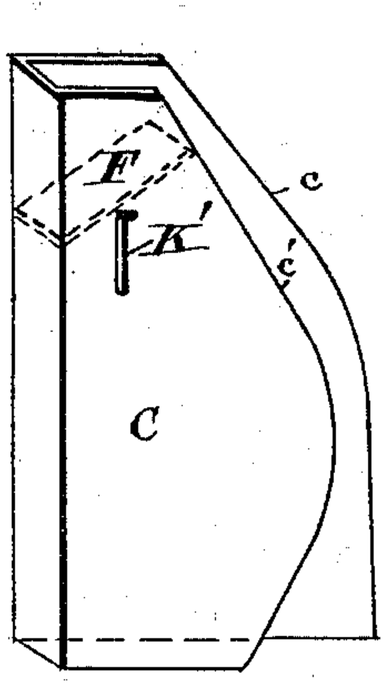


Fig. 9.

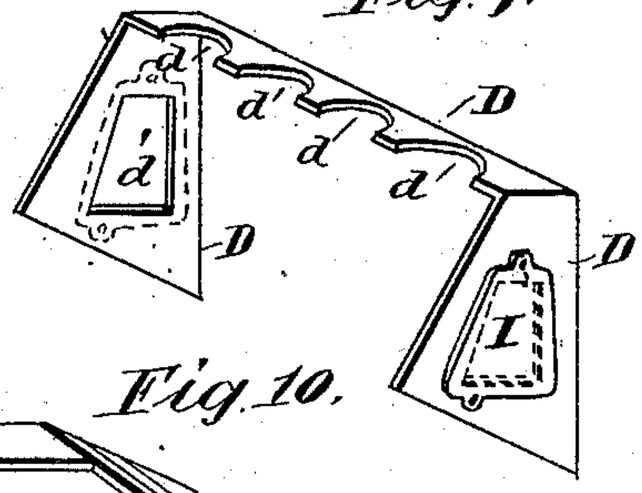


Fig. 8.

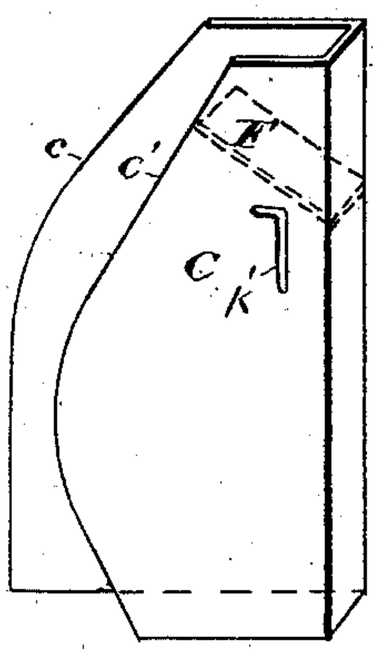
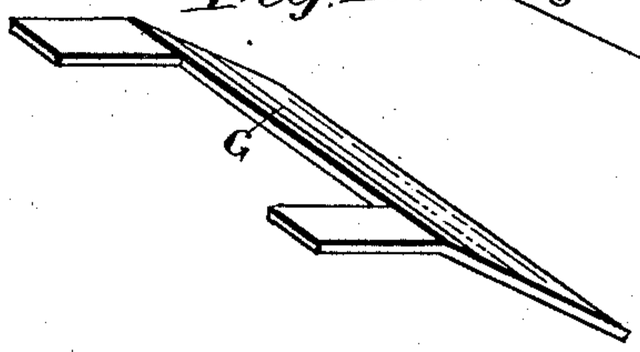


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN G. SHELDON, OF CLEVELAND, OHIO.

FIREBACK.

SPECIFICATION forming part of Letters Patent No. 505,237, dated September 19, 1893.

Application filed June 7, 1893. Serial No. 476,831. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. SHELDON, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Firebacks, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in detachable fire backs, and its objects are to provide means for utilizing the great heat projected against the back and end walls of the fire place for heating other rooms.

My invention consists in the combination and arrangement of parts and construction of details, as hereinafter described, shown in the accompanying drawings, and more specifically pointed out in the claims.

In the drawings Figure 1 is a sectional view of the device and inclosing chimney showing the adjacent parts in perspective. Fig. 2 is a view of the front of the detachable grate, and Fig. 3 of the rear. Figs. 4, 5, 6, 7, 8, 9 and 10 are detail views of the various parts. In Figs. 2 and 3 the interior parts are shown by dotted lines.

In the drawings A is the front plate of a hollow back wall resting against the back of the chimney; B, is the rear plate. Both of these plates are curved to conform to the shape of the grate and back wall, the front being curved outwardly at top and bottom while the rear plate is curved forward at the top but extends directly downward at the bottom to form an air inlet chamber. The ends of the fire box are formed by the plates C C, which inclose an air space on three sides, the rear being closed by the front and back plates of the main fire back.

In the side plates C, it will be seen that the outer rear edges *c* extend farther to the rear than the inner rear edges *c'*, thus forming bearing edges for the front and back plates A, and B, which entirely cover the opening at the third side except where openings *a* and *a'* are left at the top and bottom of plate A for air inlet and outlet, registering with the space inclosed in the end pieces C.

D is a horizontal partition provided with openings *d* placed above the fresh air inlet *b* in the back plate B, and at its extremities vertical plates D', provided with air inlets *d'*, close the ends of the air box.

Additional openings *b'* at the top of the rear plate B, serve as outlets for the heated air. To these outlet openings are secured the air flues E, for the heated air after passing through the fire back.

F, F, are deflectors in the side chambers to guide the hot current of air into the openings *a*.

G, is a bottom plate covering the lower opening in the fire box and side chambers, and H, is a cover plate over the fire back and side chambers.

I, is a damper operated by the rod J, and button K, in slot K', by which the openings *d'* can be closed when the fire on the grate is too low to thoroughly heat the air in the side chambers. Another damper L, may be employed to adjust the air admission to the cold air chamber, formed by the partitions D, and D'.

It will be seen that the partitions D, and D', serve to collect the air in the box and prevent its too rapid rise into the flues E. The partition M, below the openings *b* for hot air outlet accomplishes the same purpose and is perforated at *m* for air outlet. For the same reason the chambers in the end pieces are closed by the ends of the front and back plates A, and B, except where the openings *a* and *a'* are left for air circulation. The effect of these partitions is obviously to retain the cold air in contact with the heated plates until sufficiently heated to warm the air of adjacent rooms.

N, is a grate shown as in an upper room, but the flues E, may lead to side rooms as well. As many as three rooms could be warmed with the surplus heat from one grate.

The several plates are secured together in any suitable manner desired; as shown, screws *x*, *x*, are placed at suitable intervals to unite the plates or, if desired, the plates can be flanged and bolted or riveted together. Any metal may be employed, as sheet brass or iron or cast iron. This is not of the spirit of the invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a removable fire back, the combina-

tion of front and rear plates, A, and B, end chambers formed of single plates C, C, bent to form front and sides of the chambers, the third side being closed by the over-lapping front and rear plates A, and B; a top plate covering the chambers and a foundation plate, on which they rest, substantially as described.

2. In a removable back, the combination of front and back plates A, and B, partitions D, D′, and M, perforated at *d*, *d′*, and *m* and side chambers C, separated from the rear chamber by the front plate, perforated at *a a′*, as and for the purpose set forth.

3. In a removable fire back, the combination of a rear chamber formed between front and back plates; side chambers closed in the rear by the said front plate; a cover plate over the chambers, and foot plate underneath them, the front and back plates being provided with openings for air circulation, with partitions D, D′, and M, provided with openings for air circulation, substantially as described.

4. In a removable fire back, the combination of a rear heating chamber formed of front and back plates A, and B, side chambers inclosed by plates C, on three sides, the fourth side being covered by the front plate to the rear chamber, inlet and outlet flues for air, and means for retarding the passage of the air through the chambers, consisting in the partitions M, D, and D′, provided with openings for the passage of air, and openings between the chambers, substantially as described.

5. In a removable fire back, the combination of front plate A, provided with openings on its edges *a*, *a′*, rear plate B, provided with air inlet and outlet openings, and having its lower part extended to form an air box, partitions D, D′, and M, between said plates, perforated for air passage, and side plates C, inclosing side chambers on three sides, and abutting on the fourth side against the plates A, and B, with dampers I, over the openings in the partitions D′, substantially as described.

6. In a removable fire back, the combination of front and back plates, A, and B, provided with air openings for circulation, the said plates being separated by perforated partitions, with side plates bent to inclose side chambers on three sides, one of the side walls formed by said plates in either side, extending to the rear plate B, the other wall being shorter and extending to the plate A, substantially as described.

7. In a removable fire back, the combination of a rear chamber formed by front and back plates, a side chamber formed of plates bent to inclose said chamber on three sides, the side plates abutting against the said front and back plates, as and for the purpose set forth.

8. In a removable fire back, the combination of front and back plates A and B inclosing a heating chamber, partitions D and D′ separating said plates, and forming an air box, side chambers composed of plates C bent to inclose said chambers on the front and sides, the front plate A closing the side chambers on the fourth side, and provided with openings *a*, *a′*, deflector plates in the side chambers over the openings *a′*, and flues E and L entering the back plate B. all arranged substantially as and for the purpose set forth.

JOHN G. SHELDON.

Witnesses:
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JOHN T. LISTER.